

State in Vertex Form

$$f(x) = -3x^2 - 15x + 7$$

$$f(x) = \frac{1}{3}x^2 + 6x + 4$$

Mar 30-9:05 AM

State in Vertex Form

$$f(x) = -3x^2 - 15x + 7$$

$$f(x) = -3(x^2 + 5x) + 7$$

$$f(x) = -3\left(x^2 + 5x + \frac{25}{4}\right) + 7$$

$$f(x) = -3\left(x + \frac{5}{2}\right)^2 + \frac{25}{4} + 7$$

$$f(x) = -3\left(x + \frac{5}{2}\right)^2 + \frac{25}{4} + \frac{28}{4}$$

$$f(x) = -3\left(x + \frac{5}{2}\right)^2 + \frac{53}{4}$$

$$f(x) = \frac{1}{3}x^2 + 6x + 4$$

$$f(x) = \frac{1}{3}(x^2 + 18x) + 4$$

$$f(x) = \frac{1}{3}(x^2 + 18x + 81 - 81) + 4$$

$$f(x) = \frac{1}{3}(x + 9)^2 - 9 + 4$$

$$f(x) = \frac{1}{3}(x + 9)^2 - 5$$

$$f(x) = \frac{1}{3}(x + 9)^2 - 27 + 4$$

$$f(x) = \frac{1}{3}(x + 9)^2 - 23$$

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$$f(x) = \frac{3}{4}x^2 - 12x - 17$$

$$f(x) = \frac{3}{4}(x^2 - 16x) - 17$$

$$f(x) = \frac{3}{4}(x^2 - 16x + 64 - 64) - 17$$

$$f(x) = \frac{3}{4}(x - 8)^2 - 64 - 17$$

$$f(x) = \frac{3}{4}(x - 8)^2 - \frac{192}{4} - 17$$

$$f(x) = \frac{3}{4}(x - 8)^2 - 48 - 17$$

$$f(x) = \frac{3}{4}(x - 8)^2 - 65$$

Oct 17-9:57 AM

4.3 Solving Equations using Quadratic Formula p 216

$$-3x^2 + 5x + 1 = 0$$

$$3x^2 - 5x - 1 = 0$$

$$a = 3, b = -5, c = -1$$

$$x = \frac{-(-5) \pm \sqrt{(-5)^2 - 4(3)(-1)}}{2(3)}$$

$$x = \frac{5 \pm \sqrt{25 + 12}}{6}$$

$$x = \frac{5 \pm \sqrt{37}}{6}$$

$$x = \frac{5 + 6.1}{6}, x = \frac{5 - 6.1}{6}$$

$$x = \frac{11.1}{6}, x = \frac{-1.1}{6}$$

$$x = 1.9, x = -0.2$$

The roots (zeros) of $-3x^2 + 5x + 1 = 0$ is $(1.9, 0)$ and $(-0.2, 0)$

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p 222 { 223

2, 3, 7, 8, 9

A value - must be +ve - whole #

$$i) \left(\frac{1}{2}x^2 + 3x + 1 = 0 \right) \times 2$$

$$x^2 + 6x + 2 = 0$$

$$ii) \left(\frac{2}{3}x^2 + \frac{4}{3}x + \frac{2}{3} = 0 \right) \times \frac{3}{2}$$

$$x^2 + 2x + 1 = 0$$

$$x^2 + 6x + 3 = 0$$

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$$-3x^2 + 5x + 1 = 0$$

Find the roots at $y = -15$

$$-3x^2 + 5x + 1 = -15$$

$$-3x^2 + 5x + 1 + 15 = 0$$

$$-3x^2 + 5x + 16 = 0$$

$$x = 7$$

$$3x^2 - 5x - 16 = 0$$

$$a = 3, b = -5, c = -16$$

$$x = \frac{-(-5) \pm \sqrt{(-5)^2 - 4(3)(-16)}}{2(3)}$$

$$= \frac{5 \pm \sqrt{25 + 192}}{6}$$

$$= \frac{5 \pm \sqrt{217}}{6}$$

$$= \frac{5 \pm 14.7}{6}$$

$$= \frac{5 + 14.7}{6}, \frac{5 - 14.7}{6}$$

$$= \frac{19.7}{6}, \frac{-9.7}{6}$$

$$= 3.3, -1.6$$

$$(3.3, -15), (-1.6, -15)$$

$$f(x) = 60x - 2x^2$$

$$A = 400m^2$$

$$400 = 60x - 2x^2$$

$$0 = 60x - 2x^2 - 400$$

$$0 = -2x^2 + 60x - 400$$

$$0 = 2x^2 - 60x + 400$$

$$a = 2$$

$$b = -60$$

$$c = 400$$

Mar 23-10:43 AM